

## CLAIMS

I claim:

1        1.    A real drum trigger monitor and amplified tone module,  
2 comprising:

3        a hollow drum shell having at least one drumhead closing  
4 one end of the drum shell;

5        an electronic trigger sensor mounted within the drum shell,  
6 the trigger sensor having an output;

7        a speaker subsystem mounted within the drum shell, the  
8 speaker subsystem having an input;

9        a drum shell connector disposed on the drum shell, the drum  
10 shell connector having an input portion and an output portion,  
11 the output portion being electrically connected to the output of  
12 the trigger sensor and the input portion of the connector being  
13 electrically connected to the input of the speaker subsystem.

1           2.    The real drum trigger monitor and amplified tone  
2 module according to claim 1, wherein said speaker subsystem  
3 further comprises:

4           a low frequency speaker;

5           a high midrange speaker; and

6           means for controlling an operating frequency range of the  
7 speakers.

1           3.    The real drum trigger monitor and amplified tone  
2 module according to claim 1, wherein said speaker subsystem  
3 further comprises:

4           an upper speaker mounting plate disposed within said drum  
5 shell;

6           a spacer ring disposed on top of the upper speaker mounting  
7 plate, beneath said drumhead; and

8           a lower speaker mounting plate disposed within said drum  
9 shell, the lower speaker mounting plate having at least one vent  
10 hole disposed therein.

1           4.    The real drum trigger monitor and amplified tone  
2 module according to claim 1, further comprising a sound module  
3 having:

4           a housing removably attached to said drum shell, the housing  
5 having a front and a rear;

6           a housing connector disposed on the rear of the housing, the  
7 housing connector being electrically connected to said drum shell  
8 connector when the sound module is mounted to said drum shell;

9           an analog-to-digital converter having an input and an  
10 output, the input being electrically connected to the housing  
11 connector, whereby the output of said trigger sensor is  
12 electrically connected to the input of the analog-to-digital  
13 converter when the sound module is mounted to said drum shell;

14          a tone processor having input and output signals, the input  
15 of the tone processor being connected to the output of the  
16 analog-to-digital converter;

17          a digital-to-analog converter having an input and an  
18 output, the input of the digital-to-analog converter being  
19 connected to the output of the tone processor; and

20          an amplifier having an input and an output, the amplifier  
21 input being connected to the output of the digital-to-analog  
22 converter, the output of the amplifier being electrically

23 connected to the output of the housing connector, whereby the  
24 output of the amplifier is electrically connected to the input  
25 of said speaker subsystem when the sound module is mounted to  
26 said drum shell.

1 5. The real drum trigger monitor and amplified tone  
2 module according to claim 4, wherein said sound module further  
3 comprises:

4 a control panel; and

5 power means for supplying operative electric power to the  
6 real drum trigger monitor and amplified tone module.

1 6. The real drum trigger monitor and amplified tone  
2 module according to claim 5, wherein said control panel  
3 includes:

4 an LCD display;

5 a MIDI patch control;

6 means for adjusting sensitivity of the output of said  
7 trigger sensor; and

8 means for adjusting output level of said digital-to-analog  
9 converter.

1        7.    The real drum trigger monitor and amplified tone  
2 module according to claim 4, wherein said sound module includes:  
3        an interface connecting the input from said analog-to-  
4 digital converter to an external device; and  
5        an interface connecting an external trigger signal to the  
6 input of said analog-to-digital converter.

1        8.    The real drum trigger monitor and amplified tone  
2 module according to claim 4, wherein said tone processor  
3 includes a microprocessor, memory, program instruction code  
4 stored on said memory, and a plurality of tones digital stored  
5 on said memory.

1        9.    The real drum trigger monitor and amplified tone  
2 module according to claim 4, wherein said tone processor further  
3 comprises a MIDI compatible interface to an external MIDI  
4 device.

1        10. The real drum trigger monitor and amplified tone  
2 module according to claim 4, wherein said sound module further  
3 comprises a tone card reader electrically connected to said tone  
4 processor, whereby additional tones may be read into said  
5 memory.

1        11. A real drum trigger monitor and amplified tone module  
2 adapted to receive an electronic percussion instrument having a  
3 trigger sensor output, the real drum trigger monitor and  
4 amplified tone module comprising:

5            a hollow drum shell;

6            a speaker subsystem mounted within the drum shell, the  
7 speaker subsystem having an input;

8            a drum shell connector disposed on the drum shell, the drum  
9 shell connector being electrically connected to the input of the  
10 speaker subsystem; and

11           a sound module removably attached to the drum shell, the  
12 sound module including a housing having:

13                a front and a rear;

14                a housing connector disposed on the rear of the  
15 housing, the housing connector engaging said drum shell  
16 connector when the sound module is mounted to said drum  
17 shell;

18                a trigger input connector adapted to receive the  
19 trigger sensor output of an electronic percussion  
20 instrument;

21           an analog-to-digital converter having an input and an  
22           output, the input being electrically connected to the  
23           trigger input connector;

24           a tone processor having input and output signals, the  
25           input of the tone processor being connected to the output  
26           of the analog-to-digital converter;

27           a digital-to-analog converter having an input and an  
28           output, the input of the digital-to-analog converter being  
29           connected to the output of the tone processor; and

30           an amplifier having an input and an output, the  
31           amplifier input being connected to the output of the  
32           digital-to-analog converter, the output of the amplifier  
33           being electrically connected to the output of the housing  
34           connector, whereby the output of the amplifier is  
35           electrically connected to the input of said speaker  
36           subsystem when the sound module is mounted to said drum  
37           shell.



1        12. The real drum trigger monitor and amplified tone  
2 module according to claim 11, wherein said speaker subsystem  
3 further comprises:

4            a low frequency speaker;

5            a high midrange speaker; and

6            means for controlling an operating frequency range of the  
7 speakers.

8        13. The real drum trigger monitor and amplified tone  
9 module according to claim 11, wherein said sound module further  
10 comprises a tone card reader electrically connected to said tone  
11 processor, whereby additional tones may be read into said  
12 memory.

1        14. The real drum trigger monitor and amplified tone  
2 module according to claim 11, wherein said tone processor  
3 includes a microprocessor, memory, program instruction code  
4 stored on said memory, a plurality of tones digital stored on  
5 said memory. The real drum trigger monitor and amplified tone  
6 module according to claim 11, wherein said tone processor  
7 comprises a MIDI compatible interface to an external MIDI  
8 device.

1        15. The real drum trigger monitor and amplified tone  
2 module according to claim 10, wherein said sound module further  
3 comprises a control panel and power means for supplying  
4 operative electric power to the real drum trigger monitor and  
5 amplified tone module.

1        16. The real drum trigger monitor and amplified tone  
2 module according to claim 15, wherein said control panel further  
3 includes:  
4        an LCD display;  
5        a MIDI patch control;  
6        means for adjusting sensitivity of the output of said  
7 trigger sensor; and  
8        means for adjusting voltage output level of said digital-  
9 to-analog converter.

1        17. A real drum trigger monitor kit for converting a drum  
2 and at least one speaker into a real drum trigger monitor, the  
3 drum having a hollow drum shell and at least one drumhead  
4 closing one end of the drum shell, the real drum trigger monitor  
5 kit comprising:

6        an upper speaker mounting plate adapted for mounting within  
7 the drum and adapted for having a first speaker secured thereto;

8        a spacer ring inserted between the upper speaker mounting  
9 plate and the drumhead, and

10       a lower speaker mounting plate adapted for mounting within  
11 the drum and adapted for having a second speaker mounted  
12 thereto, the lower speaker mounting plate having at least one  
13 vent hole disposed therein.

1        18. The real drum trigger monitor kit according to claim  
2 17, wherein said upper speaker mounting plate and said spacer  
3 ring form a single unitary structure.